

WHAT IS CLAIMED IS:

1. An array of micromirror pixels, comprising:
a mirror layer having a mirror associated with each pixel;
5 a hinge layer spaced under the mirror layer, the hinge layer having a hinge under each mirror and attached to the mirror such that the mirror may tilt above the hinge layer;
an address layer spaced under the hinge layer, the
10 address layer having circuitry for controlling operation of the pixels; and
wherein each mirror is connected to the hinge layer with a via support post, the via support post being made from a material that at least partly fills a via opening
15 and a via seat patterned into the hinge layer.
2. The array of Claim 1, wherein the material is a conductive material.
- 20 3. The array of-Claim 1, wherein the material is the same material as the mirror material.
4. The array of Claim 1, wherein the mirror via seat is patterned onto a pad on the hinge.
25
5. The array of Claim 4, wherein the mirror via seat at least partially overlaps the pad.

6. A multilayer MEMS structure having an improved via, the via comprising:

5 a support post formed by patterning a via seat in a first layer and a via opening in a second layer, and by depositing material over the second layer, such that the material enters the via and fills or coats the via opening and the via seat.

10 7. The MEMS structure of Claim 6, wherein the material is conductive.

8. The MEMS structure of Claim 6, wherein the second layer is a sacrificial layer.

15 9. The MEMS structure of Claim 6, wherein the via seat is patterned into a via pad.

20 10. The MEMS structure of Claim 9, wherein the via seat at least partially overlaps the pad.

11. The MEMS structure of Claim 6, wherein the material deposited over the second layer forms a third layer of MEMS structure as well as the support post.

12. A method of forming a via in a multilayer MEMS structure, comprising the steps of:

patterning via seats into a first layer;

patterning via openings into a second layer; and

5 depositing material over the second layer such that the material at enters the via opening and at least partly fills the via seat and the via opening.

13. The method of Claim 12, wherein the material is
10 conductive.

14. The method of Claim 12, wherein the second layer is a sacrificial layer.

15 15. The method of Claim 12, wherein the material deposited over the second layer forms a third layer of MEMS structure as well as the support post.

16. A method of forming a micromirror array,
comprising the steps of:

forming control circuitry on a semiconductor
substrate;

5 depositing a first spacer layer on the substrate;
patterning the first spacer layer to define hinge
support vias and spring tip support vias;

depositing a hinge layer over the first spacer
layer;

10 forming at least one hinge etch mask on the hinge
layer;

patterning the hinge layer to form at least one
hinge and at least one via seat on the hinge;

depositing a second spacer layer over the hinge
15 layer;

patterning the second spacer layer to define mirror
via openings;

depositing a metal mirror material over the second
spacer layer, such that the mirror material at least
20 partly fills the via seats and the via openings;

patterning the metal mirror layer to form an array
of micromirrors; and

removing the first and the second spacer layers.